The Journal of the American Medical Association

VOL. XIX. CHICAGO, DECEMBER 31, 1892. No. 27.

ORIGINAL ARTICLES.

THE UNITED STATES NAVAL RATION.

Read in the Section of Physiology and Dietetics, at the Forty-third Annual Meeting of the American Medical Association, held at Detroit, Mich., June, 1892.

BY SURGEON C. A. SIEGFRIED, U. S. N.

In accordance with the desire of the American Medical Association, made known to Surgeon-General J. Mills Browne of the Navy, by the officers of the Section on Physiology and Dietetics, I have the honor to submit the following contribution on the U. S. Naval Ration and the system of dietetics commonly in use in the Naval Service.

You desire to know how we nourish and subsist the American Naval man, upon what principles and scale his dietary is composed, the nutritive and dynamic values of the articles composing it, and the general results both to himself and his country. As the problem implies some retrospection, and as the principles and knowledge guiding us are universal, I beg to be allowed to give some account of the present systematic training of vast bodies of men for armies and navies, and the bearing this has on the hygiene and development of whole nations and millions of human beings.

The progress of the arts and sciences in recent times has had its due influence in the evolution of the present complex military and naval rival organizations of civilized nations. These armed bodies on the Continent of Europe, where the play of political and economic problems and forces is greatest, unhappily absorb the bulk of the genius and talent of mankind, and the training and disciplining for effective use at the least cost of these hosts of men has become the chief end and aim of national ambitions. It has called into existence, aside from the material constructions and equipments of destructive offense and defense, a vast amount of practical skill and the highest arts of scientific hygiene, in producing and conserving the physical adaptability and stamina of men by the use of proper clothing, housing, food and water supplies, periods of work and rest, and the cultivation of their capacities physical and mental. In these services our profession is mostly concerned with disease prevention and waste of life, and under very favorable circumstances, for evil results quickly make themselves felt, and we have to deal here with the causes of more losses than the casualties of the most sanguinary wars in history. A bad dietary and tainted water quickly render a force of men useless, whilst comparatively few are killed in battle. There has thus been produced a very costly, highly efficient and intensely destructive agency, and no department of science and experience is left unransacked to promote these ends.

But as all these things are but inanimate contrivances and inventions needing for their essential uses the touch of man, it is our part to produce and preserve to the extent of all his powers the more highly endowed and delicate human machine, so that he may not fail in his part in the hour of trial, that waste of life and loss of treasure may not be the final result.

Vast national forces, in countries where every able-bodied man must serve his allotted time with the army or navy according to his place in society, are in reality vast schools, and by many publicists and hygienists are looked upon as blessings in this sense. The ignorant peasant and lowly laborer are taken from often barbarous surroundings, cleansed, vaccinated, and set upon a humane basis of existence more favorable in every respect for their improvement. They are removed for a time from the deadening labor of the fields and factory, the mind is opened, they are trained not only to arms but in the elements—if no more—of a common education—by their associations and daily tasks. His body is cultivated in all parts, including his mind, for obviously this human machine is made more efficient and expert as a war factor in proportion as his mental and physical development has advanced.

It is said with justice that since universal military or naval service has come into effect in European countries, many problems relating to sectional antipathies, as well as the causes of disease and spread thereof influencing whole provinces, are being removed. This is notably so in Italy, and is a powerful factor in the regeneration and unification of that country. So from the standpoint of hygiene, and as medical men, it cannot be an evil that these hosts of human beings are so collected together, groomed, trained and fed as science dictates; for once implanted in them by the power of the State, these habits and impressions must to a great extent remain with them on their return to their former pursuits and civil occupations; and in so much do they and the community to which they belong benefit. It is not too much to say that this universal service is in Europe a great uplifting agency, and on the other hand wars are happily not more frequent than under previous conditions.

In those early periods in history when men fought their battles in rude boats propelled by manual labor, a rude commissary effort was carried on by the warriors' servants and differing not essentially from his daily fare ashore, whilst the absences from bases of supply were short.

In the course of time as the art of navigation and the knowledge of astronomy and geography grew, explorers traversed all seas, and in making long voyages food supplies became progressively less fresh and full, and consisted mainly of the coarser cerealia, dried and salted meats, spirits, and some live stock. Coincident with these long absences from land and fresh

food grew the list of deaths, directly and indirectly from these deprivations, and chiefly from the lack of those little appreciated food elements in a fresh state derived from succulent plants and animal flesh. So that accounts of early voyages are often but doleful narratives of gradually increasing suffering and death dependent upon these deprivations and length of time at sea. The losses from scurvy in the best appointed navies up to 1840, comprise the bulk of the mortality tables; and in the commercial marine the disease still occurs, due usually to the rapacity of owners in fitting out ships with insufficient and adulterated food supplies. Scurvy among seamen, and even on land, up to the end of the last century, has been a classic theme in the study of causes and the sequelæ of improper and insufficient dieting, and the present appreciation of the disease may not inappropriately be referred to here. It has absorbed the attention of naval medical men because of the magnitude of the losses in life, exceeding in the past that from all other causes combined.

It was not uncommon for a naval vessel in three years of remote foreign service to lose a sixth or even more of her crew, and in the voyages of discovery a century and a half ago, often but a handful returned of the hundreds who originally ventured, and these misshapen, brutalized specimens of humanity. To the immortal credit of Captain Cook, he was the first to furnish the experimental proof on a large scale of the value of succulent fruits and vegetables and their acid juices in preventing and curing scurvy. This occurred in 1772–75, during his second voyage, when with a crew of 118 men he circumnavigated the globe, and brought all but four home with him—three dying from accident and one from consumption. This memorable event, and successful dieting, for which he received the medal of the Royal Society, took place only thirty years after Anson's voyage of discovery, in which out of 900 men he lost 600 from scurvy in three years. Yet like all reforms in hygiene, the lessons of Cook's experience and the pleadings of naval surgeons had but little effect, and scurvy figured heavily in naval mortality tables up to fifty years ago. Cook's vessels in 1772 were supplied with malt, sour krout, salted cabbage, "portable broths" and soups, mustard, marmalade of carrots, inspissated juice of wort and beer, and as much as possible of live stock. He knew the value of fresh berries, he cooked grasses and greens with the dry legumes and cereals, he used the fresh flesh of all animals and birds, and he even distilled sea water in times of scarcity. To produce dryness and to fumigate between his narrow decks he used the fire and smoke from portable iron baskets. By these various means he successfully traversed (in his ship the "Resolution," of less than 400 tons burden) the seas from the latitude of England to south latitude 71°, in the tropics, and antarctic ice regions, alternately, and encircled the globe.

Scurvy pathologically is characterized by the effusion of semi-organizable fibrinous material in the tissues of the gums, between the straie of muscles, and periosteum and bone, by ecchymoses, and blanched tissues. In the blood the red cells are diminished, its albumen and fibrin are relatively increased, and there is no great decrease in the amounts of potash and other salts. Some have held that potash salts are deficient in scorbutic diets and in the urine of those ill with the disease, but this is counterbalanced by the fact of success following not potash loaded aliment, but the prompt curative effect of substances holding naturally in solution and in the fresh state the organic salts of fruits and succulent vegetables, as the citrates, lactates, tartrates, etc., best exemplified in lime juice, potatoes, acid vegetables and fruits. Ralfe concluded that the primary alterations in scurvy depended on an alteration between the various acids, organic and inorganic, and the bases found in the blood, by which, *a*, the neutral salts, as the chlorides, are either increased relatively at the expense of alkaline salts; or, *b*, that these alkaline salts are absolutely decreased. Thus is produced a "normal" alkalinity of the blood, and he suggests that this diminution produces the same results in scurvy patients as happens in animals when their blood is reduced in alkalinity by injecting acids or feeding acid salts; namely: dissolution of blood corpuscles, ecchymoses and blood stains on mucous surfaces, and fatty degenerations of muscle and secreting gland cells. The disease is a maximum expression of malnutrition dependent on chemical alterations of the blood and fluids of the body, and on specific changes in the normal metabolism of protoplasm, and its study bears a direct and suggestive relation to our subject—the proper nutrition of the body by well proportioned diet.

Though full generous food stuffs in moderately fresh state do prevent scurvy, yet it occurs when from unforeseen circumstances the diet fails in some of these requirements, and it is customary to provide mariners with antiscorbutics properly so-called. The value of lime juice was known from 1573 (Solomon Albertus), 1593 (Sir Richard Hawkins); and in 1795, through the importunity of Blane, it was regularly issued to the English navy. It is not in the regular U. S. Naval ration. In the English Arctic experience in 1873–75, it was found that scurvy occurred when lime juice was omitted, even though pemmican and preserved potatoes were used. From Kane's time raw meat is of known value. It is to the absence of the substances of the fourth group of aliments that scurvy is due, and these include those salts and bodies in tissue solutions to which much of the catalytic and dialytic properties of organic fluids, and exchanges in normal nutrition or metabolism are due. To this group, and with variety of food elements as a whole, are probably also due the more thorough elaboration of the digestive ferments and enzymes. There does not seem to be in scurvy diets any deficiency of sodium, iron, lime, magnesia, or the salts of potash or phosphoric acid, when it is considered how much phosphoric acid there is contained in the cerealia and meats, and yet the disease occurs. The same can be said of sulphur in relation to meats and the leguminosæ.

There remains then only the inorganic elements, the salts and the combinations of alkalies with those which form carbonates in the system, viz.: lactic, citric, tartaric and malic acids. The salts containing them are at first neutral, afterwards alkaline, from their conversion into carbonates; they then play a double part, and moreover, when free and in the presence of albumen and sodium chloride, these acids have the peculiar power of precipitating albumen, or perhaps of setting free hydrochloric acid. Without these carbonates there is likely to be an excess of acids in the system, from the production

of phosphoric, sulphuric, uric and hippuric acids in ordinary functional activity,and the only alkali in the body is the formation of ammonia; hence the importance of these antacids. Yet the administration of carbonates of the alkalies does not cure scurvy, but it is the particular action of these organic acids which in practice prevents and cures it.

Happily this scourge has disappeared from mortality lists in navies, yet from this grade of extreme malnutrition to the less appreciated faulty body conditions and manifest ill-health, occurring both ashore and afloat, is not many steps, whether among the poorer laborers of the fields and factory, or in luxurious homes. The tea and bread diet of the factory hand, the ham and hominy of the farmer, the confection-crammed child of wealth, and the heavily loaded club man—whose tissue cells by overstimulation go from cloudy swelling to fatty degeneration—all these exemplify grades of malnutrition and consequent disease in various forms. The lack of correct nutrition is keenly felt in family lines, in "diatheses," and in body states comprised in classes of disease wherein there is vulnerability of certain tissues, and irregular functioning leading to early dissolution. Whether we use the terms meaning observed facts such as phagocytosis, chemotaxis, and the anti-toxic properties of normal tissue cells and blood serum, these disease-resisting properties are inherent to functionally active well balanced organizations under conditions of correct nutrition in the larger sense. The well known nurtureless milk from the breast of a poorly fed woman is not alone deficient in nutrients but contains at times (recent observers in *Virchow's Archives*), the microörganisms of suppuration.

The cravings for quantity of the glutton, the strange perversions in kind and quality, the excesses of the orgie-loving seaman, are of deeper significance than is ordinarily accorded them. By long custom and necessity existence can be endured on marvellously altered food, both in quantity and quality, yet there grows with such conditions abnormal sense and intellection faculties, persistence follows from uncontrollable and ineradicable habit; and finally, there is perpetuated a blighted, low human type, prone to crazed excesses, criminalities and abbreviated existence. Such populations are to be seen in all countries, in the mining and factory regions of the foremost nations as well as among the older oriental nations and barbarous peoples. Laws based upon philanthropy and knowledge of food requirements are of slow growth, due to the difficulty of dealing with the selfish interests and unconscious ignorance of the vast majority of mankind. Peas may not be greened with copper sulphate for use in France, but may be so treated for use in other countries, the latter clause being added by the power of selfish interest. Finally we are justified in saying that disease may be produced by alterations in quantity, excess or deficiency; by imperfect conditions of digestibility, state of integrity, preparation and cooking; and by special characters of quality.

The steps leading to the present recognized principles of healthful dieting reach back to the time of Aristotle, who said that the organism requires food supplies for three purposes—growth, heat production, and to make up for loss by bodily excreta. He thought that the formation of heat took place in the heart by a process of concoction, the heat so formed being distributed to all parts of the body by means of the blood, while the respiration was regarded as a cooling process. Galen compared the metabolic processes to the phenomena going on in a lamp; the blood represents the oil, the heart a wick, and the lungs a fanning apparatus. Van Helmont and the intro-chemical school argued that the metabolic processes are fermentations, whereby the food is mixed with the juices of the body. Since the middle of the seventeenth century—the time of Boyle—the knowledge of metabolism has followed the development of chemistry.

A. V. Haller regarded heat as due to chemical processes—the food continually supplying the waste which is excreted from the body. After the discovery of oxygen, Lavoisier formulated the theory of combustion in the lungs whereby CO_2 and water were formed. Mitscherlich compared the decomposition processes in the living body with putrefactive processes. Magendie was the first to emphasize the difference between nitrogenous and non-nitrogenous foods, and he showed that the latter alone were not able to support life.

The greatest advance was made by the illustrious Liebig, who in fact laid the foundation of our present knowledge, though his division of foods into the plastic and respiratory or oxidizing foods is no longer tenable. The labors of the French Gelatine Commission have also been of use in the studies of nitrogenous foods. The more recent and accurate knowledge of the chemico-physiological processes of normal metabolism has been chiefly gained by the labors of the Munich school of investigators, Pettenkofer, Voit and others. Proteid tissues are not alone the result of proteid food, and the accumulation of fat in the body is not altogether due to excessive consumption of fats and carbohydrates. Contrary to the former general belief it is now known that the nitrogenous tissues are not used up during hard labor any faster than when at rest, and that increased muscular exertion is attended by increased consumption of stored up fat. We may liken the human body to a machine composed mainly of proteid tissues, keeping its integrity by supplies of nitrogenous foods and its working capacities by non-nitrogenous foods; and of these latter fat is of peculiar conserving and economic importance. Further progress in the metabolism of protoplasm, as also the causes of the phenomena in disease processes resulting from changes in chemical constitution of tissues, must in great part come from the workers in the field of chemistry. It is realized that the whole class of unstable proteids, emulsions, and nutritional solutions from food digestions, are difficult to elucidate at their distinctive values, and here the grasp is frequently at shadows in the search for substance. May not this apparently insurmountable barrier exist in virtue of the vital principle—the unceasing molecular change in living tissues?

In a public service like the Navy, with careers spent away from the centres of learning and research, and with barely sufficient room on shipboard for the common necessities of the animal man, it is not expected of us that we carry the torch. We endeavor to apply the scientific truths gained by our more fortunate brethren on shore. Since the beginning of the present century but little original work in dietetics has been done by naval men, and the writings of Lind, Blane, Trotter, and Fletcher are still the

classics in the English language, and we all profit by the works of the lamented Parkes. Recent writers have however done much good wook in several directions, notably the French and Germans, but dietetics has not been given the same prominence as other conditions infiuencing health on shipboard. Scientific dietetics has conduced to greater economies in the French, German, and Italian navies, and they have graded the food allowances to the amount of work required. It is recognized that if men are to work or fight well they must be fed well. In our navy the subject might be further developed, not in any great additions to quantity or variety, but in the now recognized possible economic adaptations—the hardest worked to be the best fed, and changes in character in accordance with the nature of the work or service, the climate and season. From time to time changes in sea dietaries have taken place in keeping with the general increase of knowledge regarding food stuffs, and it can be said now that naval seamen as a rule actually get adequate food and the full value of their lawful allowances.

From the beginning of our national existence the laws state "All contracts and purchases of supplies for the military and naval services shall be made by or under the direction of the chief officers of the war and navy departments respectively" (July 1798). The naval subsistence was in the hands of the "pursers," now the paymasters under the direction of the Bureau of Provisions and Clothing in the Navy Department at Washington. The contract system and the lowest bidder consistent with good quality, is in vogue, surrounded by many safeguards. Supplies are advertised for with particular and full specifications in every detail of quantity, quality, packing, preservation and methods of keep, and distribution in convenient packages and portions. Stores are used within as short a time of their packing as possible, and much ingenuity is exercised in stowage, size and shape of casks and cases, and in issue.

Naval dietaries up to 1798 were truly deplorable, and that life was endured at all in working health is a marvel. But then navies, up to our times, were services of adventure, discovery, fighting and spoils, and thus attracted men; and if necessary men were impressed or forced into navies and ships. The famous mutiny at the Nore in 1797, in which several thousand British sailors took part, was due to wretched rationing, and one of their complaints was that the sailors' pound was only 14 ounces, because of the eighths subtracted from their allowances by their officers by law and custom, in fact this was the chief source of pursers salaries in those days. The daily ration then was composed of albuminous principles 4.58, fats, 3.14; carbohydrates, 12.83, and salts 1.20 ounces.

Pursers also sold stores and food stuffs, and the crews added to their diets by purchase. In those days such dietaries were common in navies, and yet great wars at sea were carried on, and courage and strength were an English sailor's characteristics. Prizes and plunder were no doubt inspiring agencies in the old sea life, and made up for lack of pay and food allowances; and armed ships did much as they pleased with other people's property, considering the constant wars, discovery voyages, and legalized piracies(?). Not infrequently noted commanders were freebooters in one hemisphere and court noblemen in the other. With the emergence of the world from the wars of the last century, navies became more and more peaceful patrols of the sea, and the chief food supplies became and now are the legal allowances—the ration. From that time on "salutary changes" were frequently made and with these came ameliorations and improvements in mortality tables; typhus fever, ulcer, dysentery and scurvy disappeared and diminished, and the sailor was no longer classed with the lowest of human beings.

In our own navy the ration has been over-hauled and changed in some direction at periods of about twenty years. When spirits was abolished in 1862, its cost (the ration) was raised from 25 to 30 cents, and it is so now when commuted. The ration, substantially as now, was in 1842 established by Congress. "The ration, shall consist of 1 pound of salt pork, with ½ pint peas or beans; or 1 pound salt beef, with ½ pound flour, and ¼ pound raisins, dried apples, or other dried fruits; or 1 pound salt beef, with ½ pound rice, 2 ounces butter, and 2 ounces cheese, together with 14 ounces biscuit, ¼ ounce tea, or 1 ounce coffee, and one gill spirits; weekly ½ pint each, pickles, vinegar and molasses." As substitutes, "fresh meat 1¼ pound, for salt beef or pork; 1 pound vegetables or sour krout for the articles issued with the salt meats. 1 pound fresh bread, 1 pound flour, or ½ pound rice for 14 ounces biscuit; ½ pint wine for a gill of spirits. Spirits not allowed persons under 21 years of age; others may relinquish and receive commutation therefore." This scale was only inferior to the present one in actual values by reason of imperfect packing and preserving methods in use in those days, combined with long sea voyages. It is difficult to correctly estimate nutritive values of allowances and descriptions of the articles used at that time, and frequently years would elapse from the putting up of an article to its consumption. Hence enormous fluctuations in values.

In 1861, the law provided preserved meats and dessicated vegetables, for the first time, and the spirit allowance was abolished shortly afterwards. More latitude was given for substitution and variety. The canned and dessicated food stuffs met with little favor from the men and the suppression of Jack's grog was considered nothing short of a crime, and caused much discontent at the time. The total lack of spirit, beer, or wine, in a sea dietary is not in accord with the opinion of many hygienists and seagoing people, and the law has not improved the content with the many inexorable deprivations of sea life. This ration was satisfactorily used during the civil war. In 1872 an additional ounce of coffee and sugar was allowed for an early breakfast. Sailors so long as they have money, constantly and freely add to their daily fare from market or "bumboats," which come alongside at meal times in all parts of the world. Fruits, bread, and eggs in great quantity, are consumed in this way; and great bagnets filled with potatoes are carried to sea, in addition to their allowance. It has occurred to me that salt meats rarely in practice come up to their theoretical values, and this, with some deficiency in fats, usually due to waste in cooking, has caused the sometimes prodigious-egg consumption from bumboats. All seamen desire large rations and naturally prefer fresh food. They are also great growlers and look with suspicion upon innovations in their rations, and the best intentions are in this regard often thwarted by them.

In 1884, the Hon. Secretary of the Navy appointed

a board of officers to revise and advise concerning the ration, and the present regulations date from that time. The list of articles was amplified and in many respects the food, meal hours, and methods of preservation, packing and issue, were improved, so that on the whole, while not substantially increased in quantity over that provided by law of 1861, the ration is superior to that of other naval services, and compares well with standard and model dietaries. But the nutritive and dynamic values are, according to my calculations, inferior to that of some classes of laboring men and mechanics in this country; and, it is lacking in a just proportion of elements, the fats being deficient in the common sea issues and the albuminates in the fresh issues.

Among the questions put to the '84 Board were the following: Is the ration sufficient in quantity and variety, and is it necessary to exceed present cost? Others related to preparation of supplies, commutations, and cooking. They reported that the ration was deficient in fat and nitrogenous principles, and they made appropriate recommendations. One of the most important recommendations made, the training of a class of competent cooks, was not acted upon. With us as with you ashore, the amount of waste, the difference between the amount of food material supplied and the amount consumed, is enormous, certainly as much as 25 per cent., and much of this would be prevented by better cooking. Potatoes are roughly cut to pieces not pealed, the fat of meats is boiled or burned off and becomes "slush" (common ships grease for lubrication purposes), flour is made into poor breads and indigestible "duffs," and methods of haste and ignorance, combined sometimes with sharp practices, prevail in some instances with the cooks and mess attendants. It is interesting to note that as a rule the officers—in answer to inquiries from the '84 Board—had nothing but praise for the ration in amount and nutritive value, their criticisms relating mainly to matters of detail in care, preparation and issue. On the other hand six seamen emphatically said "no, they never had enough to eat when on their legal rations," "it was not varied enough; that the salt beef was always bad; they desired better cooking facilities; and to commute 25 per cent. of ration, and with the money buy other food."

As an instance of what can be done in managing allowances of food to their best uses, Col Burnett, of the First Royal Rifles, of the English army, found his men suffering (in 1889) from lack of food, due to wretched distribution and cooking. By careful management and with no change in cost, he brought the carbon up from 4,588 grains to 4,912 grains, and the nitrogen from 276 grains to 344 grains per diem, the men being satisfied instead of suffering semi-starvation, and receiving in ounces: albuminates 4.92, fats, 2.96, and carbohydrates 16.36. It is asserted that with proper care the English army and navy allowances are amply full, and exceed the continental services in nitrogenous matter. In general the U. S. Navy ration is somewhat superior to the English naval ration in albuminates, and much superior in the same element to all European navies. Bread is the staple in continental rations, 1½ pounds being the common daily allowance, whilst ours is but 1 pound. But we excel them in meats, butter, sugar, and beverages, the more satisfying elements. Condiments are not supplied in our ration, contrary to other services, the men buying it, and they obtain salt from pork barrels.

For particularly arduous duties, or exigencies of polar service, additional and appropriate food is supplied by the government and according to the character of the service. It is now impossible to carry in modern warships great amounts and varieties of food stuffs; the conditions have changed since steam alone has become the motive power, and ships keep the sea no longer than the supply of fuel lasts rarely over a fortnight. It is also difficult to make in set terms of law a single rigid dietary for so many varying circumstances of duty, climate, and labor, so that latitude and simplicity of application are essential, the nutritive standard being kept in view. If subsistence alone were the object aimed at the rations could be graded according to the work done by individuals, and the crew of a ship could be divided into three classes, first the moderate workers, second, the hard workers, and third, the severe hard workers. But it is better and simpler in practice to have one scale on shipboard, the class of severe laborers—the firemen—could be allowed an additional third or half ration. Most foreign navies have adopted the sliding scale here indicated. The muscular exertion of the men on a modern war ship varies from writing accounts and stores keepers; watching, moving about in a certain space for hours at a time; actively attending moving machinery; drilling with small arms and great guns, to the hardest labor known—that of stoking marine engine furnaces in a closed fireroom at a temperature of from 110′ to 175′ F. The working life of a modern steamship firemen is given at about nine years; exhausted hearts, and chest diseases due to sudden excessive and abnormal conditions of heat and cold, combined with the strain of great labor in a confined space kill these men up prematurely. Such men require much nutrition, and in most great navies are the higher paid and fullest rationed class. The average seaman or deckman requires a less full diet, and finally about 10 per cent. need only the moderate work scale. So that an average modern warships company is composed of:

	Nutrients in Grams.			Potential Energy in Calories.
	Protein.	Fats.	Carbohydrates.	
25 per cent. of men in severe labor, requiring	225	200	650	5407
65 per cent. of men in hard work, requiring	175	150	550	4367
10 per cent. of men in moderate work, requiring	125	125	500	3735
(Estimated model), an average of	175	158	566	4507*
Present ration	157	75	549	3615

*In foot tons, 6895.

Naval apprentices for the first six months, usually spent in harbor, are subsisted at the commuted cost of the ration, 30 cts, and this supplies an ample and varied dietary. Amounts are not restricted and the fare is quite the equal of the ordinary American home table. These boys, from 14 to 18 years of age, begin the day with cocoa and milk, breakfast (with meat four days in the week) at 8. dinner at 12 (with meat) and supper at 6, the usual navy meal hours. On occasions men or boys are put on "bread and water," in confinement, with full ration every fifth day. The officers and naval cadets subsist themselves the ration being commuted. On long sea voyages they often use the regular ration and the writer (in a ships company of 300) once subsisted fairly well and

without hardship for five weeks on three fourths of the ration, though the men were restless and murmured. By law, commanding officers of ships, from accident or unforeseen scarcity at sea, can curtail the food and supplies of any description. For very obvious reasons naval dietaries should be constructed upon generous principles, for an efficient naval vessel must be manned by actively strong, and intelligent men and officers; hence a model diet must lean to proteids and fresh supplies, consistent with keep and transport.

TABLE A.—U. S. NAVY. SEA OR SALT RATION. ONE WEEK'S ISSUE.

Articles.	Allowance.		Nutrients in Grams.			Mineral Matters.	Potential Energy in Calories.
	Lbs.	Ozs.	Protein.	Fats.	Carbohydrates.		
Salt Pork[1]	2	. . .	194.14	52.05	. . . . .	163.57	
Salt Beef[1]	1	. . .	115.78	.78	. . . . .	82.	
Preserved Meats[2]	4	. . .	231.33	69.40	. . . . .	32.16	
Canned Vegetables	1	2	13.77	2.04	66.33	. . .	
Rice[3]	. . .	8	16.78	.90	180.07	.90	
Peas	. . .	8	60.55	3.85	127.91	6.57	
Beans	1	. . .	104.78	9.07	270.53	14.06	
Flour[3]	1	. . .	49.89	4.98	339.74	2.26	
Biscuit	6	2	433.41	36.11	2039 27	24.23	
Dried Fruit[4]	. . .	4	2.72	. . .	70.30	. . .	
Butter	. . .	6	1.70	144.58	.85	5.10	
Sugar	1	12	. . .	. . .	776.33	. . .	
Molasses	. . .	8	. . .	. . .	165.79	. . .	
Cocoa	. . .	6	. . .	. . .	. . . . .	. . .	
Coffee	. . .	8	. . .	. . .	. . . . .	. . .	
Tea	. . .	1.50	. . .	. . .	. . . . .	. . .	
Vinegar and Pickles	1	. . .	. . .	. . .	. . . . .	. . .	
Total	22	1.50	1224.85	323.76	4037.12	330.85	
Daily average	3	.35	174.98	46.25	576.71	47.26	3515

[1] 18 per cent. waste.
[2] Corned beef, roast beef, and sausage meat.
Substitutes: Ham, brawn, bacon, smoked and salt fish.
[3] Or cornmeal, hominy, oatmeal.
[4] All varieties.

TABLE B.—U. S. NAVY FRESH RATION. AVERAGE DAILY ISSUE.

Articles.	Allowance.		Nutrients in Grams.			Mineral Matters.	Potential Energy in Calories.
	Lbs.	Ozs.	Protein.	Fats.	Carbohydrates.		
Fresh Meats[1]	1	4	87.68	74.48	. . . . .	4.35	
Fresh Vegetables[2]	1	4	10.71	.43	74.19	4.08	
Fresh Bread	1	. . .	37.71	7.71	255.37	3.98	
Flour	. . .	2.28	7.12	.72	48.53	.32	
Butter	. . .	.85	.08	21.99	. . . . .	.22	
Sugar	. . .	4	. . .	. . .	110.90	. . .	
Molasses	. . .	1.14	. . .	. . .	23.80	. . .	
Dried Fruit	. . .	.57	.39	. . .	10.04	. . .	
Cocoa	. . .	.85	. . .	. . .	. . . . .	. . .	
Coffee	. . .	1.14	. . .	. . .	. . . . .	. . .	
Tea	. . .	.18	. . .	. . .	. . . . .	. . .	
Pickles and Vinegar	. . .	2.28	. . .	. . .	. . . . .	. . .	
Total	4	5.29	143.69	105.33	522 83	12.95	3715

[1] 20 per cent. waste. Calculated from total fore and hind quarters.
[2] 18 per cent. waste. Potatoes, onions, cabbage, etc., mixed.

In the French navy the cost and kind of the ration varies from 11 cents to 27 cents according to the position of the man. Commutation is not common in any European navy, the men being fed closely and paid on a similar plane, whilst their dietaries partake of the national characteristics. Maccaroni figures in the Italian, sour krout in the German (and it is unsurpassed as a sea vegetable), brandy in the French, and oil, wine, cheese and beer, in most of their lists. Meats are rather limited, and bread and biscuit large—to 1½ pounds in most of them. The Chilians allowed their men recently 2 pounds meat daily. The Germans give more food in the first three months of a sea cruise, thus very properly supplying a common craving among the younger men. These services also arrange their dietaries according to station, at home or abroad, the climate, the zones and seasons of the year. In public services it is not considered the part of a government to supply every requisite of luxury common to an elaborate dietary, but to subsist each individual safely and well, so that his capacities may be fully kept up.

The modern compact foods for troops, and composed of the essential nutrients in convenient shapes

TABLE B[1].—THE DAILY AVERAGE U. S. NAVAL RATION.

The mean of all food supplies . .	Protein	157.34
	Fats	75.59
	Carbohydrates	549.77
	Mineral Matters	30.10
	Potential energy in calorics . .	3615
	" foot tons . .	5531

TABLE C.—ESTIMATED FOOD CONSUMPTION OF AMERICAN NAVAL SEAMEN.

	Nutrients in Grams.			Potential Energy in Calories.
	Protein.	Fats.	Carbohydrates.	
Average general ration, U. S. Navy	157.34	75.79	549.77	3615
Additional by purchase	50	50	50	
Total	207.34	125.79	599.77	4480
U. S. Naval Apprentices, harbor station	178	108	603	4210
U. S. Navy punishment ration, "bread and water"	37.71	7.71	255.37	1273

TABLE D.—*AMERICAN DIETARIES.

	Nutrients in Grams.			Potential Energy in Calories
	Protein.	Fats.	Carbohydrates.	
Mill operatives, Massachusetts	114	127	504	3715
Average of 71 persons, Mass. Labor Bureau.	119	202	552	4625
Two Boston boarding houses, teamsters and marble workers; severe labor	217	364	988	8377
Well-paid Connecticut machinists in boarding house; food supplied	126	188	426	4010
" consumed	103	152	402	3490
College football team, food eaten	181	292	557	5740
Professional men, college students; food actually consumed	126	152	489	3926
Club men	140	158	553	4105
Average European professional men	114	. . .	. . . . .	2670
Average American professional men	126	. . .	. . . . .	3925

*From works of Prof. Atwater.

TABLE E.—EUROPEAN DIETARIES.

	Nutrients in Grams.			Potential Energy in Calories.
	Protein.	Fats.	Carbohydrates.	
English Navy, 1720	148	102	415	3258
" " at present (MacDonald)	156	155	603	4544
" naval apprentices	115	111	563	3822
French Navy, from	115–150	45–100	513–550	
Italian " similarly.				
German " home station	141	113	650	4293
" " sea cruising	151	95	600	3962
Bavarian workmen	122	34	570	3150
" brewers	149	61	744	4270
Munich mechanics, well paid	151	54	479	3085
Lumbermen, Bavarian Alps	130	292	724	6215
Very poor German farmer	83	17	573	2845
German professional men	107	105	280	2565
" Army, peace	114	39	480	2800
" " war	134	58	489	3095
" " extraordinary war	192	45	678	3985
" " war of 1870 and '71	157	285	331	4650
Swedish mechanics	134	79	523	3435
English work people, poor, hard labor	78	41	458	2580
" " " better class, hard labor	144	83	631	3950
English royal engineers (Playfair)	145	85	629	3564

are now common in Europe, beginning with the famous pea sausage of the Germans in 1870–71. They are used in sudden rapid movements in sections of country bereft of food supplies; each man carrying his own supply for from three to four days, and a single wagon transports an infantry company's supply for a week. I present here a specimen recently made in Russia. It is made up in small ob-

long biscuits $\frac{3}{4} \times 1\frac{1}{2}$ inches, and the daily food allowance proposed in this form is of:

Iron Ration, Russian Army { Wheat cake, 200 grams. Condensed vegs., 200 grams. Burnt coffee, 25 grams. Salt, 25 grams.

The tables following give in detail the U. S. Naval food supplies; the rations actually issued, at sea and in port, according to regulations. I have also added some selected standard dietaries, European and American, and specimen dietaries from several countries and our own, of people in many occupations, for comparisons. The data I have used for calculating the nutrient and dynamic values are mainly from the works of Prof. W. O. Atwater, (to whom I am under great obligations), Edward Smith, and Parkes, and I have endeavored to select those most in accord with the articles of the ration as familiar to me in a

TABLE F.—STANDARD EUROPEAN DIETARIES.

	Nutrients in Grams.			Potential Energy in Calories.
	Protein.	Fats.	Carbohydrates.	
German (Voit).				
Average man, at rest	110	50	450	2761
" " moderate labor	118	56	500	3055
" " severe labor	145	100	500	3574
French (Dujardin Beaumetz).				
Average man, at rest	129	35	410	2535
" " severe labor	190	90	600	4076
English (Playfair).				
Adult, in full health	119	51	531	3139
" hard work	185	71	568	3747

TABLE G.—AMERICAN STANDARD DIETS (PROF. ATWATER.)

	Nutrients in Grams.		Potential Energy in Calories.
	Protein.		
Man with little exertion, or woman in light work	90	Fats and carbohydrates mutually replaceable, and quantities vary with conditions of consumption.	2500
Man with light work or woman moderate work	100		3000
Man with moderate work	125		3500
Man with active muscular work	150		4000
Man with severe " "	175		5700
Man with very severe " "	200		7500

naval experience of twenty years. The results are, however, only approximative, and greater accuracy could be obtained by actual weighing of amounts eaten. In conclusion I would add that my views on the dieting of American seamen incline to the principles so ably advocated by Prof. Atwater, deduced from the experience of hundreds of dietaries in actual existence among our people; that is, less proportional carbohydrates, sugars and starches, and somewhat more fat than is usually given in the standards, and larger amounts of albuminates, the more easily assimilable stimulant food, and what is of much importance, the more satisfying. It is certainly true of American seamen, that they consume more protein relatively than seamen of other nationalities, and that they seem accordingly more active in labor and quicker witted.

CHILDREN AND THE WORLD'S FAIR.—The Board of Lady Managers of the Columbian Exposition has undertaken to build and equip a structure devoted to children and their interests. Lectures will be given upon the development of the child's mental and moral nature by improved methods of home training. There will be a crèche for babies and a play-ground for children.

HERPETIC ERUPTIONS OF THE MOUTH AND PHARYNX IN CHILDREN.

Read in the Section of Diseases of Children, at the Forty-third Annual Meeting of the American Medical Association, held at Detroit, Mich., June, 1892.

BY S. HENRY DESSAU, M.D.,
OF NEW YORK.

What is commonly known as a fever blister, or *herpes labialis*, has from the earliest days in medicine been associated in its causation with some disorder of the gastric function. There is every reason to believe that such is a fact, the immediate cause of the eruption being an irritation of a terminal nerve filament by a peculiar poison generated through some disorder of normal digestion by the fever process. For this reason herpes is now classed by dermatologists as a neurotic eruption. Now as herpes affects the lips, in some cases amongst children the eruption may also appear within the mouth, on the mucous membrane of the tongue, the pharynx and the tonsils. It will always be found that some degree of gastric disturbance, either with or without fever, has preceded the eruption in this locality.

Although there is nothing new offered in this statement, it is surprising that it is not more familiar to the profession. In a large practice amongst children extending over 20 years I have seen only a few *typical* cases of herpes of the mouth and pharynx. Here all doubt as to the correctness of the diagnosis was settled by the appearance of the vesicles upon the skin of the lower lip, and running back in almost a direct line, the eruption in the form of small apthous-like ulcers could be traced upon the mucous membrane of the lip, the gums, the dorsum and edge of the tongue and upon the tonsils. Without the characteristic eruption being demonstrated upon the skin of the lower lip, such cases might easily be mistaken for so-called aphthous or even follicular stomatitis. And this is the point that I desire to make in this short contribution. May we not rightly regard all of these affections of the mouth in children, excluding of course thrush, which is of parasitic origin, as herpetic, even though all of the typical features of the eruption be not present? Given a child whose nerve cells are sub-normal in point of nutrition, either from hereditary transmission or improper pabulum, and such child, other things being equal, will be far more liable than another child of a higher order of nerve organization, to the action of certain products of abnormal digestion, acting as a poison upon the nerve cells. These poisons I think may be identified as the ptomaines which are the product of fermentation caused by the presence of germs growing upon the albuminoids of the food and anatomical tissues.

Now in a young child whose nerve cells are decidedly more sensitive to disturbances of nutrition than at an older age, the slightest departure from the normal in physiological function will often be the means of producing an impression upon the cells controlling the terminal nerve filament. This peculiar predisposition to irritating influences may be witnessed in adults where local contact of certain substances, such as pepper, shell-fish or even saliva from kissing will produce herpes of the lip.

I have for some years entertained the opinion that the affection so commonly seen in children, known as follicular tonsillitis or *angina lacunaris*, is due to gastric disturbance, either from improper food or

over-feeding. This view is strengthened by the result of treatment, which is a confirmation of the old aphorism, that "the cure shows the disease." My treatment for this affection is entirely internal, the difficulty of making local applications in young children being thus avoided. I give calomel in doses of $\frac{1}{6}$ grain in the form of the palatable tablet triturate, repeated every 2 or 3 hours for 2 or 3 days, and the successful result is prompt.

There is a great danger however, in a careless observer making a mistake in diagnosis in this affection, especially in view of the fact that there is a strong resemblence in the appearance of the parts in follicular tonsillitis to mild cases of diphtheria. In fact there is a determined disposition on the part of some authorities in pediatrics to call all affections of the pharynx, where there is the appearance of an exudation, diphtheria. Such a course would undoubtedly be safest on the whole, for the welfare of the general community, but at the same time our advance in the knowledge of medicine would be receiving a serious set-back. I think ordinary care in observation will overcome any danger of likelihood in spreading such a serious contagious disease as diphtheria. The exudation in mild forms of diphtheria, however slight it may be, is always uniform and consistent, even though it may not be extensive enough to be deeply embedded in the mucous membrane; while the exudation that covers the follicles in follicular tonsillitis, apthous stomatitis and typical herpes of the pharynx is pultaceous, breaking down easily when the parts are cleansed with a dossil of cotton wool. I am now referring only to the difference in the *appearance* of the exudations. I have referred to follicular tonsillitis at such length for the reason that I am inclined to place this affection as well as apthous and follicular stomatitis in the class of herpetic affections. They are in my opinion due to a similar original etiological factor as herpes, and in this regard I am pleased to find myself concurring with the views of Dr. Forcheimer as expressed in his article on "Apthous Stomatitis" in the May number of the *Archives of Pediatrics*. No better treatment in these affections of the mouth and pharynx in children can be found, than fractional doses of *calomel* given in the dose and form I have before mentioned. In such doses calomel acts as an undoubted stimulant of the liver, one of the five functions of which organ it is to destroy the poisons formed in the process of both normal and abnormal digestion of food and so prevent their entrance into the general circulation of the blood.

ADDRESS OF THE CHAIRMAN—PROGRESS AND NEEDS OF DENTISTRY.

Delivered before the Section of Oral and Dental Surgery, at the Forty-third Annual Meeting of the American Medical Association, held at Detroit, Mich. June, 1892.

BY J. TAFT, M.D.,
OF CINCINNATI, O.

A backward glance for a year or two upon what has been accomplished affords ground for encouragement.

While, as is the case in almost every department of human occupation, there is a dark and a bright side, aspects discouraging and encouraging, yet it is quite apparent to the unbiased and faithful observer, that the dark side is becoming diminished in extent and lessened in intensity, and the bright is extending in all directions and assuming an increasing brightness. Discouragements are fading and encouragements growing.

I will for a brief time endeavor to direct attention to a few things that seem to afford warrant for this statement. If we look to the mere practical matters of our profession it is quite apparent that never before was there such an intense interest and earnestness shown as at the present time; never were practical methods, processes, instruments, appliances and materials examined, criticised and tested as to-day. It is no longer sufficient for a few to pass judgment in respect to any of these things, with the expectation that such decision will be accepted without question or challenge. While it is true that now more than ever before dentists are willing and even anxious to witness illustrations and demonstrations, it is equally true that every one, especially of the more progressive sort, must verify by his own tests and experience, that which he has witnessed at the hands of others; and as higher attainments have been made in the knowledge of underlying principles, these tests and examinations are more and more exacting and severe, thus bringing the greater probabilities of approximation to the truth.

There is a growing community of interest in all that pertains to the principles and practice of dentistry, in as much as almost the entire profession have given liberally of that which they possess, however it may have come to them.

There is a feeling of intolerance in the profession towards those who hold or retain from others anything new or valuable that may by any means have come into their possession. This principle is clearly presented in the Code of Ethics.

The opinions and views entertained in regard to the education and training of those who are to constitute the dentists of the future are undergoing rapid and radical changes, more pronounced than ever before. The enquiry comes from the pen or lips of every interested one—what can be done to avoid the errors and deficiencies of the past, and to make more thorough, complete and successful, the educational efforts that are now in operation, as well as those that may in the future be inaugurated?

Such questionings are indicative of an earnest desire for something better. As a result of these questionings and desires a very pronounced and significant change is now taking place in the educational schemes and methods suggested, and are being tested.

The old regular didactic lecture method, supplemented by vague and unsystematic clinical demonstrations, are no longer accepted and regarded as properly meeting the requirements. While the power of the lecturer—the living speaker, is esteemed as not less valuable than in the past—indeed it was never used with greater power and efficiency than at the present time—yet there have been brought into operation with it far better, more systematic, extended and thorough clinical demonstrations, and this not only to the observation of the learner, but he is subjected to the most thorough personal, manual training.

In connection with the lecture method, quizzing, reciprocal questioning, recitation, frequent writing upon the subjects of the course, and essays upon subjects assigned, together with class discussions, are being utilized to the great advantage of the learners.

No educational institutions, especially those of more than an elementary character, can assume to be well equipped for their work without a good library and museum. The library should contain, as fully as possible, the entire literature of all subjects and branches taught in any given institution.

Dental colleges should by no means be an exception in this respect. It is gratifying to know that the dental colleges of the country are turning attention to this important subject. Within the last two years more attention has been given to this question than ever before. Museums and appliances for illustrative teaching are commanding more attention and being more and more utilized. The number of dental schools has been much increased within the last two years, and most of these have established high requirements. It is a fact of great significance that the larger proportion of dental colleges recently organized have been in connection with medical colleges or universities; and some of the older dental colleges have sought and obtained alliances with universities. It is a noteworthy fact that in most cases of such alliance, the suggestion has originated with the medical schools, or with the authorities of universities. This fact considered in connection with another, viz.: that the first dental college ever organized sought an humble position with an established medical college, and was not only denied, but rudely repulsed, and with the statement made that the thought of such an alliance could not for one moment be entertained.

The favor with which dental colleges are now received by medical and other institutions is prophetic of great things for the future; it is an appreciation of dentistry by the medical profession that is not properly esteemed by the majority of dentists. Physicians have come to recognize dentistry as a department of the great healing profession, and that for the proper performance of its duties and responsibilities the groundwork of general medicine should be possessed by the dentists.

The increase in the number of dental schools is questioned, and even severely criticised by some; but that there is a surplus of thoroughly efficient schools will hardly be affirmed by any. Quite a number of the schools now in operation should raise their standard of requirements and teaching, or others should be established that would conform to the requirements of the times.

A great and important step was taken at the beginning of the current scholastic year, in the extension of the time required for graduation from two to three terms of not less than five months each. This was done in compliance with resolutions passed by the National Association of Dental Faculties, as follows:

Resolved, "That attendance upon three full regular courses of not less than five months each, in separate years, shall be required before examination for graduation."

It was further resolved:

"That we agree to adopt a graded course of instruction and an intermediate examination between each course, which course of instruction and examination shall be conducted as the faculties of the different colleges represented in this Association may deem proper."

This Association has been and is one of the most potent factors in promoting and maintaining the progress and welfare of the profession. Its influence is uplifting and is in a good degree effective in securing advanced methods of work and harmonious co-operation. During the last two years there has been a larger attendance at the dental colleges of the country than ever before, influenced somewhat, no doubt, by the more extended and strict requirements which came in force October 1, 1891.

A regular systematic course of college instruction and training is now recognized as the only proper method of entering the practice of the profession, and the recent legal enactments regulating the practice of dentistry have been formed with this idea prominently in view. No one who has not had such preparation will be acceptable in the more cultivated and refined communities. In the principal dental societies of the country graduation is a requisite for membership. This is a recognition of the desirability and value of thorough, systematic, scholastic professional training. This of course looks to a higher standard of professional attainments and excellence. There is in all our educational institions a general disposition to extend the curriculum —the scheme of study and work. Branches that have from the beginning formed a part of the course are now more thoroughly and largely studied, and new subjects are being introduced from time to time, especially those that can be made tributary to the needs of a professional education.

Preliminary education now receives more attention than ever before. This subject received an impulse from the following action of the Association of Dental Faculties:

Resolved, That a preliminary examination be required for entrance to our dental colleges. Such requirements shall include a good English education. In case of any applicant failing to pass satisfactory preliminary examination, the other colleges of this Association shall be informed of the fact.

Resolved, That a candidate for matriculation who presents a diploma from a literary institution, or other satisfactory evidence of literary qualifications, shall be admitted without further examination.

Resolved, That we agree to adopt a graded course of instruction and an intermediate examination between each course, which course of instruction and examination shall be conducted as the faculties of the different colleges represented in this Association may deem proper.

Resolved, That after June, 1893, the yearly course of study shall not be less than seven months, two of which may be attendance upon clinical instruction in the infirmary of the school, now known as the intermediate or infirmary course.

This action of the Association was after due consideration passed by more than two-thirds of the members present, and now all the colleges (about thirty in number) represented in this Association conform to the requirements of these resolutions, which is regarded by all as a marked step in the line of progress.

Reference is often made to the rapid increase in the numbers entering our dental schools, and apprehension is expressed lest there should be an excess in the ranks of the profession—more than a supply for the demand. It is well for those who entertain such an idea to consider that this is, from this time onward, to be the only method of entering the practice of dentistry. The office pupilage road is about closed and will remain so. Again, those who graduate from our colleges do not all remain, but from ten to fifteen per cent., recognizing their want of natural ability or finding some more lucrative and inviting field of occupation, leave the practice of dentistry and enter a more (to them) acceptable service. Again, there are many in the profession who, though they have been in practice for many

years, have fallen behind and are not able to cope with well equipped and thoroughly educated dentists of to-day. And they are constantly dropping out and leaving their fields to others better qualified. And as the public becomes more intelligent and better informed in regard to the value and importance of the teeth and learn that they are a necessity to the welfare and best interest of the animal economy, and understand fully the capability and resources of dental science and art, the demand will be made and must be answered for the best service possible. This growth in intelligence on the part of the people is fully keeping abreast with, if not outstripping, the boasted progress of dental skill and art. It is the bold assertion of one who has given much thought to the subject, that "There are not enough well equipped dentists in the United States to properly cleanse and keep clean the teeth of all the people of the country who need such service." This statement leaves out of view all other treatments and operations upon the teeth and mouth. Whether or not this statement is literally true as has been stated, we cannot affirm that there are more well equipped practitioners in our country than are needed; of the inferior variety there probably is an excess.

By reference to the graduations of the various dental colleges of the country for the year beginning June 1, 1891, and ending June 1, 1892, it is shown that from thirty of the leading colleges the degree of D.D.S. has been conferred upon 1,430, about ten per cent. of whom are foreigners and will go to other countries, thus leaving the number for this country 1,287. If ten per cent. of these drop out in a short time, it would leave as the net increase 1,160, which will hardly more than supply the decrease, and this leaves out of the estimate the increase in the country's population. The number of matriculates during the last year in these thirty schools was 2,727, deducting from these the graduates leaves 1,397 from which to form the senior and junior classes of the coming year. This view of the subject, if correct, indicates to us clearly that there is not now, nor is there likely to be in the near future, an excess in the numbers of dental practitioners in this country. And this is without question true in regard to those who possess a thorough preparation. Of this class there probably never will be an excess —more than the public welfare requires.

The progress of any department for the future depends upon the free response to certain requisites. Some of these may here be mentioned.

First in regard to our dental schools. Notwithstanding the improvements and progress that have been made, much yet requires to be done. More thorough work should be required upon most of the ordinary branches of the curriculum. In the past the time has been altogether insufficient, and acknowledgedly so, for the proper accomplishment of the work required. To meet this necessity either longer terms or an additional number should be required. The student's work from the beginning to the end of his course should be continuous. It is a mistake that the student is permitted to follow his special study and work for from four to six months in the year and to remain idle, so far as this work is concerned, the balance of the year. He should be made to realize that it is for his interest in some way or other to follow his course of instruction, study and work continuously from the beginning until his graduation. The time required for the completion of a course will depend upon the extent of that course, the natural ability, industry and energy of the student. It was formerly supposed that two five months's courses were quite sufficient. This idea now, however, is scarcely entertained by any one; the more extended the course, the greater number of branches embraced, the longer time will be required for the completion of the work upon them. A thorough consideration of this branch of the subject is an important need of the times.

The preliminary qualification and preparation of those who propose to enter upon a course of instruction for dental practice is one of far greater import than is usually supposed. Heretofore the practice has been that almost any one, regardless of his natural or acquired attainments, has been allowed to enter upon a course of study and work preparatory for dental practice. The evils resulting from this course have been quite apparent. It is impossible to make proper preparation without a right beginning. For the right accomplishment of a dental course, a trained mind is a requisite, one accustomed to systematic thought and study and well equipped in the knowledge of the branches of a liberal education. In addition to this, there should be certain natural qualifications and fitness for the work proposed. Rarely does any one present himself for entrance to a college without consulting a practitioner and endeavoring, to learn something as to what will be required of him. In all such cases the practitioner should exercise due discrimination and refuse to recommend or advise the unfit to enter upon a course of study. The subject of giving advice to intending students should be thoroughly considered and advisedly exercised by every practitioner. A course of this kind would very much aid our colleges in determining whom to accept or reject. Most colleges now require of those who apply certificates, or testimonials in regard to character and good standing. This, however, is not enough. These certificates are given by good citizens in any walk of life, but it would be well if every student who applies for entrance to a college would bring a statement from a well qualified dentist, giving his views as to the fitness of the person to enter upon such a course. It would be well if all colleges made such a requirement. It would then become incumbent upon every intending student to consult a good dentist and obtain his advice in reference to his capability. In the preparation of those who are to enter the ranks of the profession in the future it is important that more attention be given than in the past to a broad, liberal education and culture. The great mass of those who in the years gone by have entered the profession have been limited in this respect. A breadth and depth of culture gives power and strength. It makes one better in his profession, gives him a better standing and influence with his fellows with whom he comes in contact and mingles. It would be better perhaps, as a rule, to require preparatory to entering upon a course of medicine or dental study a classical education, and the tendency evidently is in this direction. A course of not less than one year of private pupilage would be a good initiative for the student, under a well qualified, faithful teacher, but this is so rare that to make it a requirement would avail little or nothing. But the members of the profession, though they may not be able to take or give proper instruction to pri-

vate pupils, can be of immense service in an advisory way. Indeed, the profession is quite as responsible for the character of the graduates sent out as the colleges themselves. A student when applying to a college may be masked and even remain masked during his course of instruction, so that the authorities of the institution may not know his real character at all; but this view is very seldom the case with the neighbors, friends and associates of the young man. They know him without his mask and they should see to it that at least the colleges are not imposed upon in this way.

We may not now criticise the past; its work has been done and cannot be recalled; it was accomplished under circumstances and with a light very different from our environments of to-day. Perhaps the best possible was then accomplished, but the demands of the present are of a higher order and far more exacting than hitherto.

In respect to our colleges permit a suggestion which if carried out would place all upon a higher and more independent plane. As colleges at first and for many years were organized, they were dependent for support wholly upon the fees of those who patronized them. The income then was regulated by the number of those in attendance; the larger the number the greater the income. By-and-by this came to be so fully recognized that a different arrangement was sought and has in some institutions been carried out, either by endowment of the schools or by some other provision for their support independent of the income from students. A full and complete connection by dental colleges with a university or with endowed medical colleges would seem to be about the only way of escape from this unfortunate condition. It is true that in the future dental colleges may be endowed as such. Nothing of the kind has as yet been attempted so far as I am aware. Endowments for dental colleges have been said to be the great present need for dental colleges. How shall it best be accomplished?

And now a thought or two in reference to this organization which so closely allies us to the general medical profession. The very fact of this Section is an evidence of encouraging progress. It gives to dentistry a position which it did not occupy before; it brings upon its members and upon the members of the dental profession an added responsibility; it brings its practitioners into closer alliance with the members of other departments of the healing fraternity. It is prophetic of progress for the future and is a stimulus to those who rightly appreciate this inclination to go forward and make higher and higher attainments, and to render themselves worthy of the high trust placed upon them.

An attempt to measure and estimate the condition and status and progress of dentistry as it stands to-day compared with the past might with entire propriety embrace both the art and science—the practical and theoretical—and not only this but the influences and forces that are operative in promoting its development and growth. In what is now proposed, little more than a brief reference will be made to the art side of the subject; the intent is to note more especially some of the forces that are now operative for the further upbuilding and establishment of that department of the healing and restoring art with which we are the more immediately connected.

PERSONAL EXPERIENCES IN EMPYEMA OF THE MAXILLARY SINUS.

Read in the Section of Oral and Dental Surgery, at the Forty-third Annual Meeting of the American Medical Association, held at Detroit, Mich., June, 1892.

BY H. GRADLE, M.D.,
OF CHICAGO, ILL.

Suppuration of the antrum is a subject so much discussed of late that it would be unprofitable to present to you anything but personal experiences on mooted points. The diagnosis of this trouble is easy only in cases with pronounced symptoms, but in very many it is quite difficult to be certain of it. In cases coming under your observation as dentists the dental history is often a definite guide in the diagnosis. In empyema however, of nasal origin, considerable diagnostic difficulty may be experienced.

The only constant symptom is discharge from the nose. If this be one-sided there can be scarcely any doubt that it comes from one of the accessory cavities, but not necessarily from the antrum of Highmore. When disease involves both sides, however, this criterion fails. A fetid odor strongly suggests retention of pus in a sinus. The pus is probably always fetid if of dental origin, but not necessarily if the antrum has been infected from the nose. The quantity of the discharge varies in different instances and is no criterion. If the pus can be seen issuing from underneath the middle turbinated bone it must come from either the frontal or the maxillary sinus.

Pain in and around the cheek is common but not constant in acute cases, but infrequent in chronic instances. Tenderness over the inflamed antrum I have never seen.

I have not been able to rely for diagnostic purposes upon translumination of the bone by means of an electric lamp placed in the mouth. In order to use this method the room must be very dark or an opaque hood must be put over the heads of surgeon and patient. An American lamp which I used at first I found too weak, but I find that I cannot rely either upon an eight-candle power furnished by Hirschman, of Berlin. The transparency varies with the configuration of the maxilla, and pus, unless copious and thick, does not impede the light much more than bone tissue.

An absolute diagnosis can only be made by exploration. This is a very innocent procedure when made from the alveolar process. If the teeth are sound, however, and there is no room between them, a puncture can be made through the canine fossa. It is well to incise the mucous membrane where it is still firmly attached to the alveolar process and to separate it upward from the bone. For if the loose tissue under the cheek is irritated by the instruments great swelling is apt to occur. This is not dangerous but very annoying. A physician can use a conical hand-drill instead of the dental engine, as the bony wall is not thick. Even the stout needle of the aspirator suffices sometimes to force its way into the sinus. If aspiration through a glass tube attached to the canula does not reveal pus the sinus may be irrigated with sterile salt solution. As this flows from the nose into a basin the presence or absence of pus is at once determined.

It has been stated by Ziem, who has had a very large experience, that in some cases pus cannot be found at the time of the puncture, but will issue on the next day. This is not due to a new infection

during the operation. I have once had the same experience in a case where preëxisting asthma was at once benefitted by operating upon the antrum. It depends probably on the existence of incomplete partitions in the sinus.

While empyema of the antrum may not be attended by any characteristic symptom sufficient for a diagnosis it may yet cause considerable disturbances. These may be neuralgic pains, headaches, nasal stuffiness and discharge and other consequences of nasal irritability, such as asthma and less commonly derangements of the eyes and ears.

It does not seem to be commonly known that antral disease of nasal origin may heal spontaneously. I have often seen instances of acute coryza in which pus was seen to issue from the nasal orifice of the antrum. And yet after a time all suppuration ceased, nor were there after the recovery any evidences of disease of the antrum. A more positive proof was obtained in a lady in whom I opened the antrum through the canine fossa last September. There was a great deal of pus of mawkish odor but not decomposed. On account of irregular attendance the opening closed after the lapse of a week at a time when all symptoms, as well as the result of the irrigation two days previously, indicated the continued formation of pus. She then refused another operation. However, as she still has nasal discharge and irritability (and ear disease) I punctured the same antrum again this May, but found no pus on thorough search.

A curious observation which I have made twice was the removal of symptoms after the irrigation of the antrum where the operation did not confirm the diagnosis but revealed absolutely no pus. Once it was discharged from the nose, in the other case ciliary irritation and neuralgia without ocular lesions

In regard to treatment, I can add but little differing from general experience. In cases dating back no longer than a few months the drainage of the pus is sufficient for a cure. By opening the antrum, irrigating it with an indifferent sterile fluid and blowing in boracic acid we can cure the recent cases in from two to six weeks. A much longer time is required for cases of long standing, sometimes more than one year. In such chronic instances the opening should be made large. The easiest operation is from the alveolar process, if any teeth have been or are to be extracted or if there be room between them. But as this route does not, as a rule reach the lowest part of the antrum, Kuester's operation through the canine fossa is often more satisfactory. In the latter case a drainage tube can be worn; in the alveolar operation this is superfluous and even an obturator adapted by the dentist to keep the fistula open is of questionable service. One possible reason for the tedious recovery of old chronic cases is the occasional hypertrophy of the mucous membrane lining the antrum amounting even to a polypoid condition. Through a sufficiently large opening, I have used a curette with decided subsequent improvement and with but little pain in two such instances. Antiseptics have seemed to me to be of no greater influence than irrigation with salt water when the pus is copious. As the secretion is diminishing it is doubtful whether irrigation is at all necessary. The pus formation is distinctly checked by blowing into the cavity boracic acid or other soluble powders of similar antiseptic properties. In the more tedious class of cases this can be entrusted to an intelligent patient.

Discussion.

Dr. M. H. Fletcher said that he had had but little experience in cases of this kind, but related the case of one of his patients whom he took to a specialist for operation. The operator attempted to make an opening into the antrum through the canine fossa with a chisel, and found it so difficult that the patient was exhausted before an entrance was effected, and had to return home for rest. Coming back another day to have the operation completed, entrance was effected with a drill. The specialist said there had been a very unusual thickness of the bone; and Dr. Fletcher wished to ask whether such trouble was often found.

Dr. Gradle said that while there were variations in the thickness of the bone, it was rarely that any serious trouble was found.

Dr. E. S. Talbot said he had seen a case similar to the one mentioned by Dr. Fletcher, where the dentist had drilled into the nasal cavity instead of into the antrum. In many cases the antrum does not extend forward to the canine fossa, and if it does it will not extend more than one fourth to one-half inch back of the third molar. The operator in the case of Dr. Fletcher may have pierced the bone anterior to the antrum into the nasal cavity. Then besides, the antrum is sometimes divided by septa of bone. He believes the better way is to drill into the lower part of the cavity. When this is done it is easy to wash out the cavity with antiseptics, as the drainage will be good and the trouble will be cured.

(*Discussion to be concluded.*)

SOCIETY PROCEEDINGS.

American Public Health Association.

(*Concluded from page 755.*)

WEDNESDAY, NOVEMBER 30.

The second morning session convened at 9:30 o'clock, Dr. Formento presiding.

After prayer by Rev. A. J. Steelman, five more applications for membership were admitted, similar to those at yesterday morning's session. It was a noticeable fact that more American physicians were in attendance than at either of the day sessions held on Tuesday.

The amendment to the Constitution offered last year at the Kansas City meeting was so amended as to include in the membership physicians of the Republic of Mexico and Mexican States. The election of one member to the advisory council from each State in the United States, States of Mexico, and Dominion of Canada, was then proceeded with, which is a very long list indeed.

The report of the treasurer, Dr. J. Berrien Lindsley, of Nashville, was then read, which summarized, is as follows:

Balance brought forward one year ago	$ 50 34
Annual dues	1,845 00
Sale of volumes	97 80
Total cash received	$1,993 14

DISBURSEMENTS.

Printing and binding of Volume No. 17	$1,083 39
Office of Secretary for clerical help	250 00
Postage and clerical help for Treasurer	124 30
Expenses of Secretary for travelling	266 50
Expenses of Treasurer for travelling	111 59
	$1,835 78
Leaving a balance to new account of	$ 57 36

The first paper read was "The Sanitary Relations of Texas and Mexico," by Dr. R. M. Swearingen, of Austin, Texas. The author treated at considerable length the subject of quarantine. He stated that Texas is more open, and more exposed to small pox than any other State in the Union; that there were in his State last year 1,903 recorded cases of small pox. Of this number 464 had died. And $150,000 had been expended in caring for them.

During the present year thus far, there have been 1,109 cases with 300 deaths, and $19,341 had been expended car-

ing for them, and Texas protests against these impending evils.

The entire matter of his paper, which embraced the correspondence between himself, the Secretary of State, the Hon. James G. Blaine, the Governor of Texas, and Mexican Consuls at Vera Cruz, and elsewhere, was finally referred to this distinguished body (at this meeting) for a sanitary treaty.

(Discussion on the above subject was by vote deferred until Thursday.)

Dr. J. D. Plunket, of Nashville, offered the subjoined preamble and resolutions which, under the rules, was referred to the executive committee.

"WHEREAS, The subject of hygiene is through the efforts of this organization now taught in the public schools of the U. S. A., at the University of Pennsylvania and Virginia, at Harvard, Yale, Bowdoin, and other colleges, and at the Naval Academy, at Annapolis, Md., and

WHEREAS, Military hygiene as a branch of the general art of war, including the subjects of shelter, heating, ventilation, water supplies, food, disposal of sewage, and the clothing and physical training of troops, both in peace and in war should be recognized as a necessary and important part of the curriculum at all medical schools. and,

WHEREAS, This important subject forms no part of the curriculum at the U. S. Military Academy at West Point, N. Y., therefore be it

Resolved, That a committee of this Association be appointed to urge upon the Congress of the United States, the advisability of including the subjects of physiology and hygiene in the course of study at the Military Academy aforesaid.

The above were adopted on Friday afternoon, Dec. 2.

The second paper read was entitled "Defence of the Ports and Frontier Cities of Mexico against the Epidemic of Cholera that invaded Europe, and was on the point of invading the United States this year," by Dr. Eduardo Liceaga.

Third paper read was a short one entitled "A Modification of Inner Quarantine and Regulations as Especially applied to Epidemics of Yellow Fever," by Dr. D. B. Blake, of Curero, Texas.

Fourth paper, "On Yellow Fever, with some Considerations on Parasitism in Yellow Fever," by Dr. M. Carmona Y. Valle, of the City of Mexico. This paper elicited much applause.

Fifth paper read was a very brief one, entitled, "Discovery of a new Optical Combination for the Microscope," by Dr. Angel Gavino, City of Mexico.

Sixth paper, "Prophylaxis of Hydrophobia in Mexico," by Dr. Augustin Reyes (read in Spanish), City of Mexico. He spoke of having treated 659 cases with but three deaths or 0.45 per cent. Several ladies were present and listened to the proceedings with much interest.

The Association then adjourned until 3 P.M., at the Preparatory School.

The afternoon session convened at 3:30 o'clock at the appointed place, President Formento presiding.

In relation to the valuable paper read by Dr. Manuel Carmona, it was resolved to request the Supreme Board of Health of Mexico, to inquire into the reasons for the prevalence of yellow fever on the Atlantic coast while it has not appeared on the Pacific seaboard (as it was stated) but twice during the past century.

The first paper of this session was read by Dr. Juan Ramirez de Avellano, on "Croup in the City of Mexico, and Prophylactic Measures Against its Growth." It was read in his native tongue and proved to be a lengthy treatise upon this malady.

The succeeding paper was read by Mr. Mark W. Harrington Chief of the Weather Bureau at Washington D. C., on the "Relations of the Official Weather Service to Sanitary Science." The suggestions of the author were valuable and he closed his discussion amidst plaudits.

It was here suggested that the signal service officers of the United States and Mexico, be asked for data with a view of its application to sanitation, and that a committee be appointed with Mr. Harrington as Chairman. He consented to serve on such committee but thought a physician should be its chairman. Dr. Henry B. Baker, of Michigan, was then named, after which a motion prevailed that such committee be appointed.

The next paper read was upon "Typhoid Fever," by Dr. Nicholas Ramirez de Avellano which was discussed at considerable length by several Mexican physicians.

"Malarious Localities, How they may be made Salubrious," was the theme of an able essay by Dr. Charles Smart, Surgeon U. S. Army. He closed his paper amidst the applause of all present.

The Association then adjourned to meet at 3 P.M., Thursday at the Preparatory school.

THURSDAY AFTERNOON SESSION, DECEMBER 1.

There was but one session of the Health Congress, Thursday, and that was held in the afternoon of that day, the morning having been occupied by the delegates in witnessing the inauguration of President Diaz and attending the public reception at the National Palace.

The Congress convened in the afternoon at 4 o'clock, an hour after the hour set: consequently the reading of several valuable papers had to be omitted.

Several unimportant announcements were made by the local committee of arrangements.

The executive and other committees reported.

There was a lengthy and exhaustive discussion of the quarantine question.

"Prophylactic against Ophthalmia in New-born Children," by Dr. Augustin Chacon, of the Federal District, was the first paper read and many new suggestions were made for the prevention of this frequent malady.

The next paper was by Henry F. Hoyt, M.D., Commissioner of Health, of St. Paul, Minn., and treated on "The Collection, Removal and Disposal of Garbage and Dead Animals at St. Paul." The matter was thoroughly discussed after Dr. Hoyt closed.

"Endemic and Epidemic Diseases as Observed in the Gulf Ports of Mexico" was read by Dr. Luis E. Rulz, of this city, after which the congress adjourned until 9 A.M., Friday.

FRIDAY, DECEMBER 2.

This morning at 9:45 o'clock was begun the fourth or last day of the proceedings of this annual meeting with Dr. Formento in the chair.

After prayer by one of the resident ministers, several announcements by the Chairman of the Local Committee of Arrangements were made.

The executive committee reported 19 additional applications passed on, which took the usual course for election making 570 in all that had been elected members at this meeting.

Dr. Plunket's resolution offered on Wednesday was also recommended by the executive committee and as such was adopted.

Among the other resolutions adopted was that offered by Dr. Liceago, looking to the appointment of an International Commission of seven members from this body with Dr. Formento as Chairman to inquire into and adopt the most efficacious measures as to the best methods of preventing the spread of yellow fever, and the best means of quarantine from entering the ports of the U. S.

Also a resolution offered by Dr. Durgin of Boston, regarding the impending fear of cholera in the United States in

1892-93 petitioning Congress to so amend the emigration laws so as to provide for greater protection to our country from cholera (and he might have added other contagious and infectious diseases) and the prevention of importation of these diseases by having baggage properly fumigated. Also the following offered by Dr. A. L. Gihon after a long and desultory debate, in which several amendments were offered, and in succession they were tabled.

Resolutions offered and adopted by Medical Director Albert Gihon, U. S. N.

Resolved, That in view of the impending danger from cholera in 1893, it is the opinion of the American Public Health Association, that a National Health service should be established in the United States of America, as has been done in the Republic of Mexico, to procure uniformity of action in protecting the sea-coast from invasion by epidemic disease and to permit international sanitary conference and concert with this object, and that this Association respectfully requests the Congress of the United States to consider the imperative necessity for the prompt establishment of such a service, in the interest as well of the United States as of Canada and Mexico.

Resolved, That the Committee on National Health Legislation should be empowered and directed to communicate to this end with such committee as may be appointed by the Senate and House of Representatives of the United States to consider this matter.

Resolved, That the Committee on National Health Legislation shall be continued and enlarged to the number of thirteen.

Dr. Walcott of Boston, Chairman of the Committee on Legislation, submitted a lengthy report looking to the appointment of a National Health Bureau, or National Commissioner of Health by Congress, as a cabinet officer or chief sanitary officer of the U. S., and that the control of maritime quarantine should be in the hands of the National Government, which was adopted unanimously.

Dr. Griffin, Health Commissioner of Brooklyn, N. Y., offered the following preamble and resolutions which explain themselves; the same being referred to the Executive Committee; but for reasons best known to it, the committee did not report recommending their adoption.

WHEREAS, The American Public Health Association, at its meeting held in the City of Mexico, November 29, 30, and December 1 and 2, 1892, for the purpose of discussing matters relating to the public health and the best manner of preventing disease, and

WHEREAS, This country has been seriously menaced by an invasion of Asiatic cholera during the past summer and fall, particularly during that period between August 31 and October 21, 1892, when nine hundred and ninety-seven vessels from foreign ports, carrying eighty thousand and seventy-seven persons, passed through the quarantine of the port of New York, all having been personally examined by Dr. Wm. T. Jenkins, the Health Officer of the port of New York, and his assistants, and

WHEREAS, Through the vigilance, energy, zeal and efficiency of the investigations made by these officials, 266 cases of Asiatic cholera were discovered to have occurred on vessels coming from infected ports, and of this number ninety-six terminated fatally, seventy-six at sea and twenty at the quarantine (cholera) hospital Swinburne Island, and twenty-four deaths on board vessels in the port of New York, but in no instance was there a case of Asiatic cholera among any of this large number of persons that passed through quarantine. Therefore be it

Resolved. That this Association avails itself of this occasion, to express its high appreciation of the successful efforts of Dr. Wm. T. Jenkins, Health Officer of the port of New York, in preventing the introduction of Asiatic cholera.

Dr. Benjamin Lee, of Philadelphia, introduced a resolution, "That the Supreme Board of Health of Mexico be requested to furnish the Association statistics regarding virulent fevers peculiar to and most prevalent in Mexico," which was also referred to the executive committee according to rules.

The first paper, entitled "Contributions to the Bacteriological Study of the Drinking Waters of the City of Mexico," was read by Dr. José Ramirez, Secretary of the Supreme Board of Health, City of Mexico.

The above was discussed by Dr. Ojaros and Dr. Gavino.

The last paper of the afternoon session was read by Dr. Manuel Septien, of Queretaro, whose paper was one of the most interesting of the congress, and was entitled: "Importance of Hygiene, and Convenience of Creating a Sanitary Department." During his discourse he said:

"The people and government of the United States have enthusiastically embraced the idea. That great nation hardly born yesterday, and that to-day astonishes the world with its surprising development, that is unprecedented on the earth, owes its wonderful prosperity to the practical character of its sons and to the wise legislation that governs it. Notwithstanding its rooted republican instincts and strong adhesion to State rights, it acknowledges the necessity of submitting to a central authority that representing the sanitary interests of the whole country, will unify and direct its course in the most convenient manner."

At the conclusion he remarked:

"Gentlemen of the Hygiene Association, you who have consecrated yourselves to the noble study of the means of prolonging life, you who form a part of this flourishing Association and who have come to our country as missionaries of peace and progress: Welcome to you all! May your stay amongst us be a pleasant and profitable one; and when you return to your homes with our most fervent wishes for your continuous greatness, be assured that we also shall continue our labors in the noble task of conquering for man the best happiness he can enjoy in this world."

The congress adjourned to meet at the Preparatory School at 3 P.M.

AFTERNOON SESSION.

The afternoon session of the congress opened at 3:45 o'clock, vice-president Orvanaños in the chair.

The election of officers was immediately proceeded with. Following is the report submitted to the Advisory Council, which was adopted:

President, Dr. S. H. Durgin, of Boston, Mass.

First Vice-President, Dr. Eduardo Liceaga, of Mexico.

Second Vice-President, Dr. Emanuel P. Lachapelle, Montreal, Canada.

Secretary, Dr. Irving A. Watson, Concord, N. H.

Treasurer, Dr. Henry D. Holton, Brattleboro, Vermont.

Three new members of Executive Committee: Drs. Wm. Bailey, of Louisville, Ky., Henry F. Hoyt, of St. Paul, Minn., and Mr. Robt. F. Gayol, of Mexico.

Papers were then read by Drs. Adolfo Castanares, Geo. Homan, José M. Benitez and Jesus Chico. A large number of papers remain over referred to the committee on publication.

During the meeting the invariably expressed opinion was that the utmost vigilance should be observed to prevent an entrance of cholera in this country next summer. An important committee was appointed to go before congress for the purpose of having the laws of emigration so amended to prevent an outbreak of this scourge in this country next year, and the one way to do this was to have the immigration of steerage passengers stopped during the greater part of 1893. The Dominion of Canada and the Republic of Mexico will coöperate with the United States in this matter.

Of the large number present at the meeting, about 148 members attended from the United States, many of whom were accompanied by ladies, bringing the list of "visitors" well-nigh to 300.

The Association adjourned on Friday at 5:15 P.M., December 2, to convene at Chicago, during the month of October, 1893.

THE
Journal of the American Medical Association
PUBLISHED WEEKLY.

SUBSCRIPTION PRICE, INCLUDING POSTAGE:
PER ANNUM, IN ADVANCE $5.00
SINGLE COPIES . . . . . 10 CENTS.

Subscriptions may begin at any time and be sent to
THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION,
No. 68 WABASH AVE., CHICAGO, ILLINOIS.

All members of the Association should send their Annual Dues to the Treasurer, RICHARD J. DUNGLISON, M.D., Lock Box 1274, Philadelphia, Pa.

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SATURDAY, DECEMBER 31, 1892.

A MEDICO-LEGAL PROBLEM.

A physician well educated and doing a large business in a country village, was thrown out of his carriage by a collision with a runaway team, and sustained a brain concussion. He was an invalid for a year suffering from general exhaustion and neuralgia. then resumed business as before. Some time later he became possessed with the idea that a merchant who owned the runaway team, had purposely and with design, started them running down the street, with the object of colliding and killing him. The merchant was a warm friend, and had left town on some business a short time before the accident occured, and this delusion was without the slightest basis in reason or fact. This delusion soon grew into a homicidal impulse, and the next year he made two ineffectual efforts to take the life of this merchant. The physician was arrested and bound over to keep the peace, and from that time a settled conviction pervades his mind that this merchant was in league with the devil; also that the entire community would suffer in many ways until this man was removed by death. To a few intimate friends he betrayed the most cunning malicious schemes, to assassinate and poison this man, and reasoned that it was his solemn duty to do so. He construes every act of this merchant to have a concealed purpose of injury to the community and himself.

This man is in active practice and gives no evidence of mental failure or trouble. He is cheerful, active and healthy. He never talks of this merchant, and will take pains to avoid if possible meeting him. These delusions are only mentioned to his intimate friends, and all efforts and reasoning to show their absurdity only fixes them more permanently in his mind. It is almost an absolute certainty, that a homicide will follow; its occurrence is a mere question of time and circumstances.

The practical inquiry is, what can be done? No medical examination would bring out any evidence of delusion and insanity. If this delusion was inquired into he would laugh it off, and deny that it was anything but a joke. His character, conduct and mental integrity would be above all suspicion. He conducts a large practice, and appears to possess excellent judgment, acting with discretion and without prejudice in all general matters. To his few intimate friends he displays the most startling evidence of the growth of this insane impulse, and cunning plans to carry it out. He was persuaded to go on a long vacation with his wife and some friends, and yet his mind was occupied with schemes to carry out this impulse. An effort was made to break up this impulse, by a frank interview and free explanations, the merchant being aware of the purpose.

Apparently this delusion was broken up, and a complete reconciliation followed, yet in reality it was only strengthened. The practical step to have one or the other move away was found very difficult. The problem in the case was this, viz: a paranoiac and delusional mania, with concealed homicide impulse, to kill a certain man, is permitted to go in and out unrestricted, watching for an opportunity to carry out this impulse. There are no practical measures which can prevent this act. Crime will follow, then his real condition will be brought out in the evidence. This is not a single isolated case without parellel, but only one of a class, that unfortunately are becoming more prominent every year. In the efforts made to restrain these men, cunning lawyers for the defense have overwhelmed the medical testimony with confusion, and imputed the worst motives to physicians who were not able to make their testimony conform with the false legal standards. The theories on which the sanity of GUITEAU was decided, have been a sad blot on the progress of medical jurisprudence, along this line of study. The law is over half a century behind the medical recognition of these paranoiac cases.

Practical physicians in every community recognize the insanity of these concealed cases, and the criminal impulses which are certain to materialize into acts, but the law is powerless to help, and public opinion, opposes all application of restriction of liberty as insane, except where the symptoms are beyond all possible question to the minds of the laity. A great change must take place in this direction.

Disease and crime are more thoroughly preventable than curable by legal means. The great army of mental defects, whose crimes are symptoms, and signal flags of brain disease and distress, will come under medical care; then the practical solution of the great problems of to-day will be assured. To physicians the subject is an intensely material one, above all law opinion or theory, and the problem of

these paranoiacs is simply cause and effect along the line of physiological and psychological law.

RIGHT OF STATES TO REGULATE THE PRACTICE OF MEDICINE AND SURGERY.

The legislature of Oregon has enacted a law, under which every practitioner of medicine and surgery is required to obtain a certificate from the State Board of Examiners that he is a graduate of a medical institution in good standing, to entitle him to practice his profession; or, if he is not a graduate, that he has been found, upon examination by the board, to be qualified to practice medicine or surgery; or that he was a practitioner of medicine or surgery, and was so engaged at the passage of the act; and the law also provides that any person practicing medicine or surgery without obtaining such certificate shall be deemed guilty of a misdemeanor, and punishable by a fine or imprisonment or both, in the discretion of court.

This law was attacked upon the ground that it was unconstitutional (1) because it discriminates between the citizens of Oregon by permitting one to practice medicine or surgery who was so engaged when the law took effect, without examination, while it denies the privilege to another, who may wish to engage in the practice after the passage of the act; and (2) because it discriminates between residents and non-residents of the State, by permitting a physician who was a resident and engaged in the practice when the act took effect to continue the pursuit of his profession without examination, while it denies the privilege to a non-resident, who may seek to engage in the practice, unless he undergoes an examination by the board, or is a graduate and in possession of a diploma.

The first point was based on the assumption that this law is in conflict with the State constitution, which provides that "no law shall be passed granting to any citizens or class of citizens privileges or immunities which, upon the same terms, shall not equally belong to all citizens;" and the second point was based on a like assumption, that the law is in conflict with the constitution of the United States, which provides that "the citizens of each State shall be entitled to all privileges and immunities of citizens in the several States;" and also in conflict with that portion of the fourteenth amendment thereto which provides that "no State shall make or enforce any law which shall abridge the privileges or immunities of the citizens of the United States."

Neither of these contentions is tenable, says the Supreme Court of Oregon, in deciding the case referred to, State *v.* Randolph. The right of every person to pursue any lawful business, occupation or profession he may choose to pursue, subject to such restrictions as the government may impose for the protection of the health, welfare and safety of society, is unquestioned. This paramount right, inherent in every government, to provide such regulations in regard to various avocations as the public welfare may require is very broad and comprehensive. It has been said: That all laws for the protection of the lives, limbs, health and quiet of persons, and the security of all property within the State, fall within this general power of the government, and that under the general police power of the State, persons and property are subjected to all kinds of restraints and burdens in order to secure the general comfort, health and prosperity of the State; of the perfect right in the legislature to do which no question ever was, or, upon acknowledged general principles, ever can be made, so far as natural persons are concerned. Whatever difficulty, therefore, there may be in defining the precise limits and boundaries by which the exercise of this power may be governed, all agree that laws and regulations necessary for the protection of the health, morals and safety of society are strictly within the legitimate exercise of the police power.

Among the various occupations of life, there are many which may be pursued by a person without danger to the public health or detriment to the public welfare, and need, therefore, no regulations to control them; but there are other occupations or callings which require special knowledge or training or experience to qualify a person to pursue them with safety to the public health and interests; and when the occupation or calling is of this character no one can question the power of the State to impose such restrictions and to provide such regulations as it may deem proper for the protection of the health and welfare of its citizens from the evils resulting from ignorance and incapacity. "The power of the State," said MR. JUSTICE FIELD, "to provide for the general welfare of its people, authorizes it to prescribe all such regulations as, in its judgment, will secure or tend to secure them against the consequences of ignorance and incapacity, as well as of deception and fraud." There are few professions that require more careful preparation to qualify a person to practice than medicine; and certainly there are few that more nearly concern the comfort, health and life of every citizen. In view of the important interests committed to the charge of the physician, the necessity that he should possess the necessary qualifications of learning and skill is so great, and his want of them likely to be attended with results so injurious to health and destructive of life, that the power of the State to enact such laws regulating the practice of medicine and surgery as are calculated to exclude and protect the people from ignorant pretenders and charlatans has been established by repeated adjudications, and is now too

firmly settled to admit of doubt. For the accomplishment of this purpose—that is, to provide means for the protection of the public health from the ignorance and incapacity of those who are unfitted to discharge the duties of a physician—Oregon, as other States have done, enacted the law in question, and, unless it grants to some citizen or physician, or class of them, some right or immunity which, upon like terms, or under similar circumstances, it denies to another, it is a valid exercise of police power, and must be upheld.

As it is the right of the State to prescribe qualifications based on knowledge or professional skill, necessarily the State must be the judge of such qualifications, and, if the rule established to determine them is reasonable and appropriate for that purpose, it cannot operate to deprive any one of the privilege or right to practice his profession. The test of qualification, under the act, is based on medical skill and knowledge. If the person seeking to practice medicine has a diploma or license from some reputable institution, it is sufficient evidence, under the act, of the requisite qualifications to entitle him to practice. It is only when the person wishing to practice has no such evidence of his qualification that the act requires that he shall submit himself for examination by the board. In establishing this rule, the State saw fit, for reasons satisfactory to itself, to except from its provisions those physicians who were engaged in the practice at the passage of the act. In doing this it made the fact of being so engaged in the practice at that time sufficient evidence of qualification—equivalent to a diploma—rendering an examition unnecessary. To apply the language of CHIEF JUSTICE HAWLEY, of Nevada, it in effect declared that the physician or surgeon who was engaged in the practice immediately preceding the passage of the act was as well qualified, in the judgment of the State, to continue the practice of his profession, as the student, coming fresh from the halls of college with his diploma, was to commence it. But in establishing this rule as to these physicians and surgeons the State did not deny the privilege or the right of practicing medicine and surgery to any one. No class of citizens of this State is prohibited from the practice of medicine or surgery by the act, provided they have the proper qualifications, and comply with the law in relation thereto. The error of the first contention consists in assuming that the act grants "privileges or immunities" to one class of citizens or physicians of this State which it denies to other citizens of the State or other States.

The act does not grant privileges or immunities to any citizen or class of citizens, either within or without the State. It only establishes a rule of evidence by which qualification to practice medicine and surgery is to be determined. It makes the fact of a person being engaged in the practice when the law took effect sufficient evidence of his fitness to continue the practice of his profession without an examination, in the same way that the diploma of the student is accepted as sufficient evidence of his fitness to commence the practice without an examination. Such and similar provisions regulating the practice of medicine do not operate to deprive any one of the privilege to practice his profession, and have uniformly been held by the courts to be constitutional.

THE ANTI-VIVISECTIONISTS OF LONDON.

MR. LAWSON TAIT has taken public stand in the company of the opponents of vivisection. At an anniversary meeting held in October, he participated in the attacks then made upon the existing laws that govern the medical experimentation on the lower animals. As reported, MR. TAIT subscribes to the opinion that no useful knowledge can now be obtained by the methods of modern laboratory research employed by all, or nearly all, of our leading physiologists and pathologists. MR. TAIT characterized these methods as mediæval and compared them with "pressing an accused person with weights in order to make him plead." He pronounced the defenders of vivisection to be without logical argument. These positions of MR. TAIT are not exactly new, for there have already been made counter-attacks upon him; for example, MR. HORSLEY has said of him in public that while MR. TAIT is admittedly an operating surgeon of great dexterity, his writings show him to be ignorant of science and her requirements; and that he seldom loses an opportunity of declaring his contempt for pathological science, "to do which is to place himself out of touch with the modern school of thought." MR. TAIT invites such compliments as these and he probably heeds them not. The great lights of the London profession, SIR JAMES PAGET, SIR ANDREW CLARK, SIR WILLIAM JENNER, and DR. WILKS are among the defenders of vivisection and have publicly reprobated the acts of the anti-party. The late SIR WILLIAM GULL was, during his lifetime, in the same company of thinkers: he was on one occasion asked by a lady if he did not regard the experimentation on the lower animals, as done by the men of medical research, as an act of unnecessary cruelty. "Madame," he replied, "there is no cruelty comparable to ignorance." SIR WILLIAM JENNER has pointed out the strange inconsistencies of the opponents of medical vivisection when those persons call for no restrictions in the commercial or agricultural attacks on predatory animal life. As he said in 1876, any man may catch a rat in the most cruelly devised kind of trap, hunt it with dogs, or poison it with strychnine, or destroy it as he pleases, from motives of fear, dislike, or for the preservation of property, but when a scientist puts himself in a position to

cause pain, however slight, with a view of increasing knowledge and the relief of human suffering, he finds himself the subject of repressive legislation, and is even branded as a malefactor by the fanatical members of the opposing party.

DOMESTIC CORRESPONDENCE.

Revision of the Code of Ethics.

To the Editor of the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION:

"A Conservative Member" opposes the revision of the Code of Ethics of the Association in THE JOURNAL of Dec. 10, for six reasons. In the first four I find the following specifications "its phraseology is lucid;" "it does not contain any superfluous statements;" "the words are simple, the language is pure and good and the presentation of the subject is clear and logical;" "all its provisions are distinctly stated, and it does not contain any expressions that can be justly condemned or that require modification."

Probably the writer was one of the original members of the Association and is wedded to the redundant phraseology of the period when the Code was written. Has he read the editorial of the "*Medical News*," of Sept. 17? If so, will he give your readers the benefit of his opinion of the views therein contained bearing on the quotations above made from his letter? INQUIRER.

SELECTIONS.

CHLOASMA UTERINUM.—Chloasma is simply, so far as its ocular appearance is concerned, an abnormal deposit of pigment in the skin without interfering with the character or function of it.

The term chloasma in its general sense indicates only a condition without even suggesting a probable exciting cause for the pigmentation. It may be due to direct mechanical irritation of long standing; it may be due to some organic disease, as consumption, scrofula, etc.; it may be due to nervous irritability or dependent upon some change or irritation in the uterine organs.

Concerning this last named condition, which might be termed uterine chloasma, I desire to say a word, because it is the most common form and most amenable to treatment.

It is rare that we see this disease begin and develop before puberty or after the menopause. Its existence is dependent upon the abnormal activity of the generative organs. From observation I am led to believe that excessive venery is one of the more common sources of irritation that produce the deposit of pigment. In all those cases in which I have been permitted to make a vaginal and uterine examination there was a flabby and enlarged uterus, the cavity of which, including the cervix, measured from three and a half to five inches. The uterine walls also were more or less thickened, and both the os externum and internum somewhat dilated; in short, the uterus assumes the condition and appearance of subinvolution as is occasionally seen following confinement. But this condition exists not alone in females who have been pregnant, but in females as well where conception has never taken place.

Uterine chloasma runs an indefinite course; it may exist even to old age or gradually fade away, as it often does, in proportion as the generative organs lose their irritability beginning with the menopause. Since the patches may exist a long time even after uterine irritation has subsided, we are led to infer that the nervous system furnishes in part that condition on which the deposit of pigment depends, else there would be no return of it after its removal.

The diagnosis in a general way is not difficult; the most perplexing portion is to differentiate the various causes that may produce such a condition and discover the active one. As before stated, uterine enlargement has been found in every case where a full examination has been permitted; the inference is therefore drawn, right or wrong, that in every case of uterine chloasma there is, in a greater or less degree, an enlargement of the uterus, but the enlargement and irritability of it may depend upon some neurosis.

Our treatment therefore must be twofold: First, to remove the discoloration of the skin; and second, to restore the parts on which the discoloration depends to their normal condition. It would be almost useless to attempt to remove the discoloration without first removing its cause; both may be treated together, however, advantageously. For the former condition the most satisfaction has been derived from the use of bichloride of mercury (not gold), five grains to the ounce of water, carefully painted over the affected skin. In a few days a bran-like desquamation will appear and with it more or less of the deposit of pigment. After exfoliation of the superficial layers of the epidermis, if pigment still exists, the process may be repeated and continued as long as pigmentation remains.

For the latter condition medicines administered by the mouth are of doubtful utility; personally I have been unable to observe any benefit arising from the administration of any drug by the mouth or subcutaneously. The only treatment that has been of avail consisted of direct applications to the uterus, stimulating it to activity and causing in it powerful contractions; for this electricity may be used, especially galvanism, which causes tonic muscular contractions. But what has served my purpose better is the insertion into the uterus of a soluble intra-uterine pencil which by its presence causes powerful contractive pains resembling labor pains, and thus causes a reduction in size of the organ in a mechanical way. A repetition of this process will in due time restore the organ to its natural condition. This pencil can be most easily inserted by use of a "pencil carrier," procurable of any good instrument maker. One may be improvised, if need be, from an ordinary catheter. Any pencil may be used containing any drug that suits the fancy of the prescriber; preferably I prescribe a pencil containing iodoform on account of its antiseptic properties. But uterine contraction in such cases is produced by local irritation, hence it matters but little what the composition of the pencil may be, unless other conditions exist in and about the uterus which must be taken into account. I believe—a belief founded upon past experience—that a judicious treatment along the lines indicated will serve to eliminate that unsightly condition known as uterine chloasma.—A. A. Young, M.D., in *New York Medical Journal.*

MISCELLANY.

OFFICIAL LIST OF CHANGES in the Stations and Duties of Officers Serving in the Medical Department, U. S. Army, from December 17, 1892, to December 23, 1892.

Capt. W. B. Banister, Asst. Surgeon U. S. A., is hereby granted leave of absence for fifteen days, to take effect on or about January 11, 1893.

Capt. Peter R. Egan, Asst. Surgeon U. S. A., is granted leave of absence for four months, with permission to go beyond sea.

Capt. James D. Glennan, Asst. Surgeon U. S. A., leave of absence granted is extended thirteen days.

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